

WHAT IS CLAIMED IS:

- 1 1. A flexible restraint layer for use with
an inflatable modular structure where the inflatable
modular structure has a rigid structural core
comprised of a fore and aft assembly and at least one
5 longeron attached to the fore and aft assemblies
separating the fore and aft assemblies, at least one
bladder capable of being inflated and the bladder
being fixedly attached to the fore and aft assemblies,
the flexible restraint layer comprising:
- 10 a first and second circumferential strap
 assemblies;
- a radial strap assembly having opposing
 distal ends;
- the first and second circumferential strap
15 assemblies disposed on, and attachedly
 fastened to, the opposing distal ends
 of the radial strap assembly;
- a plurality of axial straps having opposing
 ends forming loops;
- 20 the first and second circumferential strap
 assemblies and the radial strap
 assembly having guides to receive the

axial straps and the axial straps being
disposed within the guides;
25 the flexible restraint layer being disposed
substantially between the fore and aft
assembly of the inflatable modular
structure and covering the bladder; and
the fore and aft assemblies being adapted to
30 receive the loops of the axial straps
such that the flexible restraint layer
is fixedly attached to the inflatable
modular structure and restrains the
bladder when the bladder is inflated.

1 2. The flexible restraint layer of claim 1
wherein the first circumferential strap assembly is
attachedly fastened to the radial strap assembly by
way of a first zipper assembly and the second
5 circumferential strap assembly is attachedly fastened
to the radial strap assembly by way of a second zipper
assembly.

1 3. A flexible restraint layer as in claim 1
wherein the first and second circumferential strap
assemblies further comprising:

a plurality of elongated circumferential straps,
5 wherein each elongated circumferential strap

terminates in opposing ends, has opposing edges, has a length, and each strap in an assembly has a different length from any other strap in that assembly;

10 the elongated circumferential straps are disposed adjacent to one another and abutting one another in an edge to edge manner in a substantially circular patterns such that the elongated circumferential straps form
15 substantially a half sphere and the opposing ends of the circumferential straps are stitched together thus forming a radial strap assembly that is substantially in the form of a half sphere;

20 a stitching pattern applied to said elongated circumferential straps at said abutments to connect said elongated circumferential straps; and

 a fastener applied to the strap of the greatest
25 length at the end of the half sphere formed by the straps.

1 4. A flexible restraint layer as in claim 1 wherein the radial strap assembly further comprises:

a plurality of elongated radial straps wherein
each elongated radial strap terminates in
5 opposing ends, has opposing edges, and has a
length;

the elongated radial straps are disposed adjacent
to one another such that the elongated radial
straps lay edge to edge;

10 a stitching pattern applied to said elongated
radial straps at said abutments to connect
said elongated radial straps;

a fastener applied to the straps at the opposing
distal ends; and

15 the straps at the opposing longitudinal ends are
stitched together thus forming a radial strap
assembly that is substantially cylindrical in
form.

1 5. A flexible restraint layer as in claim 1
further comprising at least one window opening
extending through the restraint layer.